supports a fresh food storage compartment 102 and a freezer storage compartment 104 in a vertically oriented position relative to one another. While the exemplary embodiments described and illustrated herein are in reference to a top-mount refrigerator, such as refrigerator 90, it is understood that the principles set forth herein are equally applicable to side-by-side refrigerators having fresh food and freezer compartments extending on opposite sides of a vertical wall. Moreover, the inventive concepts described herein are further applicable to single compartment refrigerators and freezers. As the benefits of the invention accrue generally to refrigeration appliances, the description set forth herein is for illustrative purposes only and is in no way intended to be restricted to a particular type of refrigeration appliance, such as, for example, refrigerator 90.

[0017] Refrigerator 90 includes an outer case or casing 106 and an inner liner 108 disposed within casing 106 and defining fresh food compartment 102 and freezer compartment 104. As described in more detail below, a space between case 106 and liner 108 is filled with foamed-in-place insulation. Also, as further described below, outer case 106 normally is formed by folding a sheet of a suitable material, such as pre-painted steel, into an inverted U-shape to form a casing shell having top and side walls. A bottom wall or bottom panel (not shown in Figure 1) of case 106 normally is formed separately and attached to the case shell side walls and to a bottom frame that includes a front rail 114 to provides support for refrigerator 100 and to facilitate air flow around and beneath cabinet 102 to ventilate a machinery compartment (not shown in Figure 1) in a bottom rear portion of cabinet 100. Inner liner 108 is molded from a suitable plastic material to form freezer compartment 104 and fresh food compartment 106, respectively. It is understood, however, that in alternative embodiments fresh food compartment 102 and freezer compartment 104 may be defined by separate liners.

[0018] In an alternative embodiment, liner 108 may be formed as desired by bending and welding a sheet of a suitable metal, such as steel, to produce relatively large capacity refrigeration units. Furthermore, in such a large capacity unit, separate fresh food and freezer compartment liners are employed for added strength and to facilitate manufacturing tolerances. In smaller refrigerators, such as refrigerator 90, a single liner 108 is formed and an upper mullion strip 110 spans between opposite *sides of* case 106 and is attached to case 106, thereby covering a dividing partition or mullion wall that

divides liner 108 into a freezer compartment 104 and fresh food compartment 102. A lower mullion 112 extends across a bottom portion of case 106, and as will become apparent below, facilitates assembly of cabinet 102. Upper mullion strip 110 and bottom mullion 112 are each formed from a suitable resilient material, such as an extruded acrylo-butadiene-styrene based material (commonly referred to as ABS) in an exemplary embodiment.

[0019] Storage shelves (not shown) and slide-out drawers 120 normally are provided in fresh food compartment 102 to support items being stored therein. Additionally, shelves or storage baskets (not shown) may be provided in freezer compartment 104 for food storage therein. Still further, an ice maker (not shown) may be provided in freezer compartment 104.

[0020] Temperature regulation and control of fresh food compartment 102 and freezer compartment 104 is accomplished by manipulation of an airflow control mechanism 116 located in fresh food compartment 102. In one embodiment, a microprocessor (not shown) operates airflow dampers (not shown) and fans (not shown) to open, close, or restrict an airflow path between freezer compartment 104 and fresh food compartment 102. Temperature settings are selectable by a user via manipulation of control knobs and dials coupled to the microprocessor. In alternative embodiments, known mechanical control mechanisms are employed in conjunction with mechanism 116 in lieu of electronic controls for selection of refrigerator compartment temperature settings and regulation of airflow in refrigerator 90. Other known features may be further integrated into airflow control mechanism 116, such as lighting fixtures for illumination of fresh food compartment 102.

[0021] A freezer door 132 and a fresh food door 134 close access openings to fresh food and freezer compartments 102, 104, respectively. Each door 132, 134 is mounted by a top hinge 136 and a bottom hinge (not shown) to rotate about its outer vertical edge between an open position and a closed position enclosing the associated storage compartment. Freezer door 132 includes a plurality of storage shelves (not shown) and a sealing gasket (not shown), and fresh food door 134 also includes a plurality of storage shelves (not shown) and a sealing gasket (not shown).

[0022] In accordance with known refrigerators, the machinery compartment behind front rail

114 at least partially contains components for executing a vapor compression cycle for cooling air. The components include a compressor (not shown), a condenser (not shown), an expansion device (not shown), and an evaporator (not shown) connected in series and charged with a refrigerant. The evaporator is a type of heat exchanger which transfers heat from air passing over the evaporator to a refrigerant flowing through the evaporator, thereby causing the refrigerant to vaporize. The cooled air is used to refrigerate fresh food compartment 102 and freezer compartment 104. As the refrigeration cycle components are beyond the scope of the present invention but well within the purview of those in the art, further discussion thereof is omitted.

[0023] Figure 2 is a partial exploded perspective view of refrigerator cabinet 100 including outer case 106 and inner liner 108. Outer case 100 includes an inverted U-shaped shell 150 including a top wall 151 and spaced apart opposite side walls 152, 154 extending downwardly from lateral sides of top 151. Shell walls 151, 152, 154 are formed from a single piece of material bent into an open, box like configuration. A separately formed bottom panel 156 is attached to a lower end portion of shell side walls 152, 154, and a separately formed case rear panel 158is attached to shell side walls 152, 154, shell top wall 151, and case bottom panel 156 to form an open-sided, generally rectangular enclosure for inner liner 108. Bottom panel 156 includes a raised portion 160 at the rear end thereof that forms the machinery compartment to house refrigeration cycle components underneath bottom panel 156.

[0024] Case shell 150 includes front faces 162, 164, 166 depending inwardly from forward edges of top wall 151 and side walls 154, 156. Upper mullion strip 110 (shown in Figure 1) and lower mullion 112 are each attached to case front faces 164, 166 after inner liner 108 is inserted into shell 150. In further embodiments, reinforcing elements, strips and frames may be secured to shell front faces 162, 164, 166 to maintain a proper spacing and orientation of shell walls 151, 152, and 154 and to avoid deflection of cabinet 100 in use.

[0025]

Inner liner 108 is integrally formed from a plastic material and includes a top wall 170, opposing side walls 172, 174 extending from top wall 170, a bottom wall 176 extending from side walls 172, 174, and a rear wall 178 attached to liner side walls 172, 174, top wall 170, and bottom wall 176 to form an open-sided box-like enclosure. An